Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of

Wireless E911 Location Accuracy Requirements	)	PS Docket No. 07-114
	)	
Request by ATN International, Inc., on behalf of its CMRS subsidiaries, for Waiver of the Location Accuracy Benchmarks of Section 20.18(i)(2)(B)(1) of the Commission's Rules	)	

To: Chief, Policy and Licensing Division
Public Safety and Homeland Security Bureau

REQUEST FOR WAIVER

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By Its Attorneys

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June 2, 2017

SUMMARY

ATN International, Inc., on behalf of itself and its wireless carrier subsidiaries (collectively, "ATN"), and pursuant to Sections 1.3 and 1.925 of the Commission's Rules, 47 C.F.R. §§1.3, 1.925, hereby requests a waiver of the location accuracy benchmarks of Section 20.18(i)(2)(B)(1) of the Commission's Rules, 47 C.F.R. §20.18(i)(2)(B)(1). Specifically, ATN requests an extension of time until January 1, 2018 within which to come into compliance with respect to its CDMA networks that are used to serve ATN subscribers, and requests a five-year waiver, through and including April 3, 2022, with respect to UMTS networks that it uses to serve incoming GSM and UMTS roamers.

ATN provides a niche CMRS service, specializing in serving rural and poverty-stricken areas neglected by the major nationwide carriers. One of those remote and poverty-stricken populations is that of the United States Virgin Islands ("USVI"), the entirety of which is within ATN's licensed service area. In addition, ATN is a major provider of CMRS as well as broadband service to Native American populations and to other remote rural populations. Because St. Thomas in the USVI, from a population density standpoint, qualifies as "urban", ATN is deemed to serve two E911 morphologies, urban and rural. ATN does not serve any portion of any of the six Test Cities.

ATN provides CMRS service to both its own subscribers and to incoming roamers. ATN operates CDMA-technology networks to serve its own subscribers. In some but not all licensed areas, ATN has also built out UMTS networks solely to serve incoming GSM/UMTS roamers. In St. Thomas, USVI, ATN operates only a CDMA network, and only reports pursuant to Section 20.18 with respect to this CDMA network. In Pima County, ATN operates a CDMA network to serve its own local subscribers and incoming CDMA roamers, and also operates a UMTS

network to serve incoming GSM/UMTS roamers. ATN provides a separate Pima County report for each of these two distinct Pima County networks.

ATN has greater technical challenges with respect to location accuracy than do larger carriers serving the Test Cities. Pima County is a remote desert area, with many terrain features that create signal blockage. In addition, with respect to GSM/UMTS, it has virtually no triangulation. St. Thomas, although technically "urban", is heavily forested, interfering with location accuracy even for GPS-assisted handsets. As a result, ATN has thus far been unable to achieve the 40% location accuracy benchmark.

However, ATN is making progress with respect to its CDMA operations (the operations which support all of the ATN customer base), and expects to be able to meet the 40% threshold by 2018. Therefore, ATN is seeking an extension until then within which to achieve the 40% accuracy level for its CDMA operations.

However, until the phones of all incoming GSM/UMTS roamers are also GPS-assisted, ATN will not be able to achieve such location accuracy for the GSM/UMTS networks it has built in some markets solely to accommodate incoming roamers. Without triangulation, such accuracy is not achievable. However, ATN only builds such roam-only networks where there is sufficient incoming GSM roamer traffic to financially support such a parallel roam-only network, which generally means ATN's roamer network is the *only* available GSM network in such an area. Therefore, in such areas, the question is not basic 911 service vs. enhanced 911 service; it is between basic 911 service and no 911 service.

Under the unique circumstances present here, a waiver of the rule is therefore in the public interest.

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REQUEST FOR WAIVER

ATN International, Inc., on behalf of its direct and indirect Commercial Mobile Radio Service ("CMRS") subsidiaries (collectively, "ATN") and pursuant to Sections 1.3 and 1.925 of the Commission's Rules, 47 C.F.R. §§1.3, 1.925, hereby requests a waiver of the location accuracy benchmarks of Section 20.18(i)(2)(B)(1) of the Commission's Rules, 47 C.F.R. §20.18(i)(2)(B)(1). Specifically, ATN requests an extension of time until January 1, 2018 within which to come into compliance with respect to its CDMA networks that are used to serve ATN subscribers, and requests a five-year waiver, through and including April 3, 2022, with respect to UMTS networks that it uses to serve incoming GSM and UMTS roamers.

When establishing the location accuracy benchmarks of Section 20.18(i), the Commission specifically recognized that for carriers in poorer or rural areas, compliance might well be difficult or impossible, and even considered the possibility of establishing "safe harbors" or other special procedures to apply to carriers with respect to such areas. Although the Commission ultimately rejected the notion of a "safe harbor", the Commission explicitly anticipated that some carriers would need to seek waiver of the new location accuracy rules

being established in that order, and said: "Any CMRS provider that is unable to comply with the rules or deadlines adopted herein may seek waiver relief."[1] The Public Safety and Homeland Security Bureau ("Bureau") set June 2, 2017 as the deadline for such waiver requests.[2]

ATN is one such carrier that requires a waiver despite its best efforts. As discussed below, good cause exists for the grant of the requested waiver.[3]

BACKGROUND

Description of ATN CMRS Providers

ATN provides a niche CMRS service, specializing in serving rural and poverty-stricken areas neglected by the major nationwide carriers. One of those remote and poverty-stricken populations is that of the United States Virgin Islands ("USVI"), the entirety of which is within ATN's licensed service area. In addition, ATN is a major provider of CMRS as well as broadband service to Native American populations[4] and to other remote rural populations. Because St. Thomas in the USVI, from a population density standpoint, qualifies as "urban", ATN is deemed to serve two E911 morphologies, urban and rural.[5]

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[1] *Wireless E911 Location Accuracy Requirements,* PS Docket No. 07-114, *Fourth Report and Order*, 30 FCC Rcd 1259, 1315-16 (¶¶156-57) (2015) ("*Fourth R&O*").

[2] Public Notice, *Public Safety and Homeland Security Bureau Provides Guidance to CMRS Providers Regarding Certification of Compliance with E911 Location Accuracy Requirements*, DA 17-306, released March 30, 2017, at p.4.

[3] ATN is filing concurrently herewith in PS Docket No. 17-78 a notice of the filing of this Waiver Request signed by Ken Borner, its Vice President of Engineering/Network Operations. Mr. Borner certifies therein that to the best of his knowledge, information and belief, all facts set forth in this Waiver Request are true and correct.

[4] Service to the nation's largest Native American community, the Navajo Nation, is provided by ATN's 49%-owned indirect subsidiary, NTUA Wireless, LLC ("NTUAW"), whose network E911 operations are fully integrated with ATN's other CMRS networks. The other 51% of NTUAW is owned by the Navajo Tribal Utility Authority ("NTUA"), an instrumentality of the Navajo Nation government. As a partially-owned subsidiary of ATN, NTUAW is included within this Waiver Request.

[5] ATN is a non-nationwide carrier, as defined in Section 20.18(i)(1)(v), which does not provide service in any portion of any of the six Test Cities, as defined in Section 20.18(i)(1)(vi).

ATN provides CMRS service to both its own subscribers and to incoming roamers. ATN operates CDMA-technology networks to serve its own subscribers. In some but not all licensed areas, ATN has also built out UMTS networks solely to serve incoming GSM/UMTS roamers. In St. Thomas, USVI, ATN operates only a CDMA network, and only reports pursuant to Section 20.18 with respect to this CDMA network. In Pima County, ATN operates a CDMA network to serve its own local subscribers and incoming CDMA roamers, and also operates a UMTS network to serve incoming GSM/UMTS roamers. ATN provides a separate Pima County report for each of these two distinct Pima County networks.

Location Accuracy Results to Date

With the assistance of its E911 contractor, West Corporation (formerly Intrado, hereafter, "West"), in late March, 2017, ATN was finally able to generate results of its E911 horizontal axis location accuracy for the last calendar quarter of 2016, after resolution of various software issues, both with the new West product designed to comply with the Commission's recent mandate from the *Fourth R&O*, and with the reports generated by ATN's ZTE switch. Those results were as follows:

Thus, according to the 2014 ATIS Document, "Considerations in Selecting Indoor Test Regions" (referenced in Section 20.18(i)(1)(vi)), and according to the Public Notice, *Public Safety and Homeland Security Bureau Provides Guidance to CMRS Providers Regarding Submission of Periodic E911 Location Accuracy Live Call Data Reports*, DA 17-82, released January 18, 2017 ("*Guidance PN*"), ATN is required to measure and report with respect to one county representing each of those two morphologies, *i.e.*, urban and rural. St. Thomas, USVI is ATN's urban morphology county, and Pima County, AZ is ATN's rural morphology county. (ATN is licensed *only* in the sparsely-populated rural portion of Pima County; ATN is not licensed in, and does not serve the urban portion of that county.)

Network	**Horizontal Accuracy Percentage**
St. Thomas CDMA	35%
Pima County CDMA	26%
Pima County GSM/UMTS	17%

As can be seen, none of those results reaches the required 40% accuracy benchmark.

However, based on these results, ATN's network operations personnel had successfully identified the relevant problems, and immediately began working on potential solutions. Unfortunately, this effort began too late to make any meaningful difference in ATN's results for the first calendar quarter of 2017, which was almost over by the time West provided ATN with the relevant information. Thus, the ATN results for that first quarter of 2017 were as follows:

Network	**Horizontal Accuracy Percentage**
St. Thomas CDMA	37%
Pima County CDMA	33%
Pima County GSM/UMTS	17%

From there, ATN, West and ZTE worked cooperatively to redesign software as needed to ensure accurate reporting, adjust for cell-extender-type cells, ensure that cell site coordinate inputs were accurate, check with Apple regarding certain features of iPhones with respect to 911, and troubleshoot additional issues pertaining to 911-only UMTS cell phones (*i.e.*, phones that are not subscribed to any CMRS provider and are only usable to dial 911). This process is by no means complete, and additional measures are being implemented on an ongoing basis as issues are identified.

In order to assess the effectiveness of remediation measures, ATN and West undertook to compile results for the first half of May (*i.e.*, May 1-15, 2017). Those results were as follows:

Network	**Horizontal Accuracy Percentage**
St. Thomas CDMA	33%
Pima County CDMA	52%
Pima County GSM/UMTS	21%

Prospects for Reaching the Benchmark

As the above tables demonstrate, ATN is making progress with respect to its primary networks, that is, the CDMA networks which ATN uses to serve its local subscribers. (Hopefully, Pima CDMA will remain above 40% the whole quarter.) ATN believes it will consistently reach the required 40% location accuracy benchmark with respect to its CDMA networks no later than the beginning of 2018, if not earlier. The important factor here is that virtually all CDMA phones, whether new or older models, are GPS-assisted, and CDMA networks rely almost entirely on handset-based location technology.

Unfortunately, the same cannot be said for UMTS networks constructed for the sole purpose of serving incoming roamers. To reach the required level of location accuracy for these networks would be an impossible task. By their nature, UMTS networks rely to a significant extent on network-based location technologies, primarily triangulation. That is especially so for older phones, which are more ubiquitous in the rural areas from which many incoming UMTS roamers are coming. However, when one has constructed a network along a rural highway, with large cell radii, operating at high power, and lined up as if a string of pearls, triangulation is not feasible.

In fact, for these incoming roamers, location accuracy becomes simply a function of whether or not the user has a GPS-assisted phone, such as an iPhone or Samsung Galaxy. If the user has such a GPS-assisted phone, ATN has a much higher likelihood of reporting accurate location information to the local Public Safety Answering Point ("PSAP").[6] If the user is calling 911 from an older phone, ATN cannot feasibly obtain or report the caller's location with the accuracy required by the rules. At this stage, and for the foreseeable future, ATN's UMTS location accuracy results will be a function of the percentage of 911 callers that have newer phones. There is really nothing ATN could do to improve its UMTS networks.

WAIVER REQUEST

I. CDMA Network Waiver Request.

As noted, CDMA networks have always relied primarily upon handset-based location technologies, such that improving location accuracy is a function of developing better handset-based technologies, as opposed to reinventing the wheel. Although rural areas do present certain challenges for any location accuracy technology,[7] ATN is working to improve its network infrastructure and particularly its network software, to reach the required threshold. However, this is a trial-and-error process; sometimes a software fix works and sometimes it does not.

Nevertheless, based on its improvements to date, ATN is now confident that it will reach the required 40% horizontal location accuracy threshold no later than the beginning of the first

[6] We assume, throughout this Waiver Request, that each rural PSAP in ATN's service areas is able to receive such location information. That is not necessarily the case in many areas served by ATN.

[7] The Commission has long recognized that even for handset-based technologies, rural areas present a challenge with respect to location accuracy, due to factors such as forestation or terrain. *See, e.g., Wireless E911 Location Accuracy Requirements,* PS Docket No. 07-114, *Second Report and Order*, 25 FCC Rcd 18909, 18916 (2010) ("*Second R&O*"). Although technically "urban", St. Thomas is both hilly and heavily forested.

quarter of 2018, and that location accuracy results for that quarter, when gathered and assessed after the end of the quarter, will demonstrate that ATN met the threshold in that quarter and moving forward.

Therefore, ATN requests an extension of time to achieve the 40% horizontal location accuracy threshold, to January1, 2018. ATN commits to promptly gather and report to the Commission its first-quarter 2018 CDMA location accuracy results, to be delivered to the Commission no later than May 15, 2018. This represents a one-year extension of time, in an area where carriers and their software vendors are trying to implement a complicated new rule, in an area – location accuracy – which has always been problematic.

ATN has been and is being diligent in its efforts to comply. Moreover, location accuracy itself is an *enhancement* of 911 emergency service, it is not 911 service. In the areas where ATN operates, the main question is often whether there is a wireless signal at all (*i.e.*, whether there is basic 911 available in an emergency). Where, as here, there are finite resources, more lives are generally saved by extending the reliable wireless footprint than by enhancing the quality of the information conveyed. Stated otherwise, a 911 call without perfect location accuracy is better than not being able to call 911 at all.

II. UMTS Waiver Request.

With respect to its UMTS networks – which, to repeat, exist only to serve incoming GSM/UMTS roamers and not local subscribers – ATN requests a five-year extension of time within which to achieve the 40% horizontal location accuracy threshold, to and including April 3, 2022. ATN is hopeful that by the second quarter of 2022, legacy GSM phones will have largely disappeared and the universe of incoming roamer traffic will consist almost entirely of

GPS-assisted GSM/UMTS phones. This would enable ATN to utilize handset-based technology to locate the phones of incoming roamers, and thereby probably achieve the requisite accuracy.[8]

ATN shall provide its location accuracy results for the second quarter of 2022 to the Commission no later than August 15, 2022, which presumably will demonstrate that ATN has been compliant since April 3, 2022.

This waiver is in the public interest. ATN does not build UMTS networks except to serve incoming roamers. Because such networks can only be justified where the volume of incoming roamers is heavy, ATN does not build such networks in areas that have significant GSM/UMTS build-out by others – indeed, that is why no such ATN network exists in the USVI. Thus, to a significant extent, the alternative to an ATN UMTS network would be an absence of service – including a complete absence of basic 911 service – for GSM/UMTS phones.

As noted, the UMTS networks are largely configured as strings of pearls, making triangulation problematic or impossible.[9] Stated simply, ATN cannot feasibly meet the horizontal location accuracy benchmark for its roam-only UMTS networks, and the only alternative is for ATN to completely shut these networks down, leaving the involved GSM/UMTS phones without *any* 911 service whatsoever. Since basic 911 service is better than no 911 service, the public interest is best served by granting the requested waiver with respect to the ATN UMTS networks.

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[8] ATN intends to continue to monitor its horizontal location accuracy for incoming GSM/UMTS roamers. If, in the quarters leading up to 2022, there does not appear to be sufficient improvement in horizontal location accuracy with respect to these roamers' 911 calls, ATN may need to seek an extension of the waiver. In such event, ATN will notify the Commission and seek such further extension in advance of April 3, 2022.

[9] Network technology-based location accuracy is not feasible in the absence of triangulation. *See, e.g., Second R&O, supra,* 25 FCC Rcd at p. 18926.

III. The Requested Waivers Are in the Public Interest.

The Commission has consistently said that its goal is public safety, that its 911 rules are intended to meet that goal, and that therefore its 911 rules have to be interpreted and applied flexibly to achieve that goal, as opposed to being applied robotically or without regard to the circumstances of a particular case.[10] The most important aspect of public safety is the ability to reach emergency personnel, *i.e.*, the local PSAP, promptly and reliably in an emergency.

Remote and rural areas, such as those served by ATN, have a variety of unique issues not found in major urban areas. In major urban areas, there are numerous carriers, and cell sizes are small in order to increase capacity; moreover, there are usually multiple cells covering any particular inch of space.[11] Basic 911 service is a given in such areas; hence the desire to enhance basic 911 service as the best means to improve public safety.

Conversely, in the areas served by ATN, basic 911 service is not a given. Most of the time, when ATN initiates service in an area, that area was without wireless service until ATN came along. ATN is generally the first, and often remains the only, provider of basic 911 service in a particular area. Moreover, as noted, ATN builds CDMA networks to serve its own local subscribers. While ATN sometimes also builds a parallel UMTS network, ATN only does so where ATN would receive so much incoming GSM/UMTS roamer traffic as to pay for the entire cost of the parallel network. That generally means there is otherwise no other GSM/UMTS

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[10] *See, e.g., Improving 911 Reliability*, PS Docket No. 13-75, *Order on Reconsideration*, 30 FCC Rcd 8650, 8654-55 (2015) ("*Intrado Order*") ("Inflexible insistence on specified actions as part of each certification despite technical considerations that show those actions may not be appropriate in all cases would undermine this principle of flexibility without advancing the Commission's goal of improving 911 reliability.")

[11] While, from a population density standpoint, St. Thomas, USVI is "urban", it is an insular and poverty-stricken area in the tropics, with heavier vegetation than is found in more temperate zones such as the continental United States. It is not the typical urban area.

network in that area, and that without ATN, there would be no basic 911 service for such incoming roamers.

Where the cost of upgrading network infrastructure so as to provide the level of enhanced location accuracy would render the entire network non-remunerative, the only rational action would be to shut down the network entirely and cease offering wireless service. But shutting down an entire network would mean the end of basic 911 service, and a significant harm to public safety. Thus, the choice is not between basic 911 service and enhanced 911 service – it is between basic 911 service and no 911 service at all.

Thus, ATN here meets the standard for receipt of a waiver, whether one looks at Section 1.3 or Section 1.925 of the Rules. The standard under Section 1.3 is "good cause", and manifestly, preserving basic 911 service to affected areas constitutes "good cause." The standard under Section 1.925 is:

> i) The underlying purpose of the rule(s) would not be served or would be frustrated by application to the instant case, and that a grant of the requested waiver would be in the public interest; or
>
> (ii) In view of unique or unusual factual circumstances of the instant case, application of the rule(s) would be inequitable, unduly burdensome or contrary to the public interest, or the applicant has no reasonable alternative.

ATN meets either of these standards.

Enforcing the rule here would frustrate the Commission's underlying goal of improving public safety, while granting the requested waiver is in the public interest. It would be unduly burdensome to require ATN to choose between constructing additional, otherwise unneeded, cell sites merely to improve location accuracy, or shutting down an entire wireless network. And in any event, ATN has no reasonable alternative here.

ATN has large incentives to reach the location accuracy benchmarks of the rules as soon as feasible. Subscribers want to feel safe and secure. Roaming partners want ATN to meet their network quality standards to the maximum extent possible. Certainly, at least in St. Thomas, ATN has to remain competitive with other providers of wireless service.[12] Therefore, grant of a waiver here will not result in ATN "dragging its feet" in terms of coming into compliance.

CONCLUSION

The public interest is best served by granting ATN a waiver of the horizontal location accuracy benchmarks of Section 20.18(i)(2)(B)(1) of the Commission's Rules: (a) through and including January 1, 2018 with respect to ATN's CDMA networks; and (b) through and including April 3, 2022 with respect to ATN's UMTS networks.

Respectfully submitted,
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[12] Of course, other USVI providers do not have to meet the 40% location accuracy threshold in the USVI itself, they only have to meet that threshold in the six Test Cities in order to advertise that they have not needed any waiver from the Commission. This advertising disadvantage is an independent incentive to ATN to reach the location accuracy benchmarks.